Assessing Visual Perception

Towards a Systematic Approach

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Assessing Visual Perception: Towards a Systematic Approach

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Background

Visual perceptual deficits are common in neurological disorders:

- *seen in around 30% of patients with acquired brain injury.*
- *also common in neurodegenerative disorders*.

Can have significant negative effects on:

- *activities of daily living, mental health and quality of life.*
- *general rehabilitation.*
- *performance on all neuropsychological tests using visual stimuli.*

Visual perception should be assessed following brain injury.

The literature does not provide a simple overview of tests available.

Aim

Create a framework that facilitates structured and systematic assessment of visual perceptual functions.

Method

- Visual perceptual tests and test batteries are identified in the literature.
- Tests and batteries are categorised according to their visual sub-processes.
- A simple visual framework is developed.

Conclusion

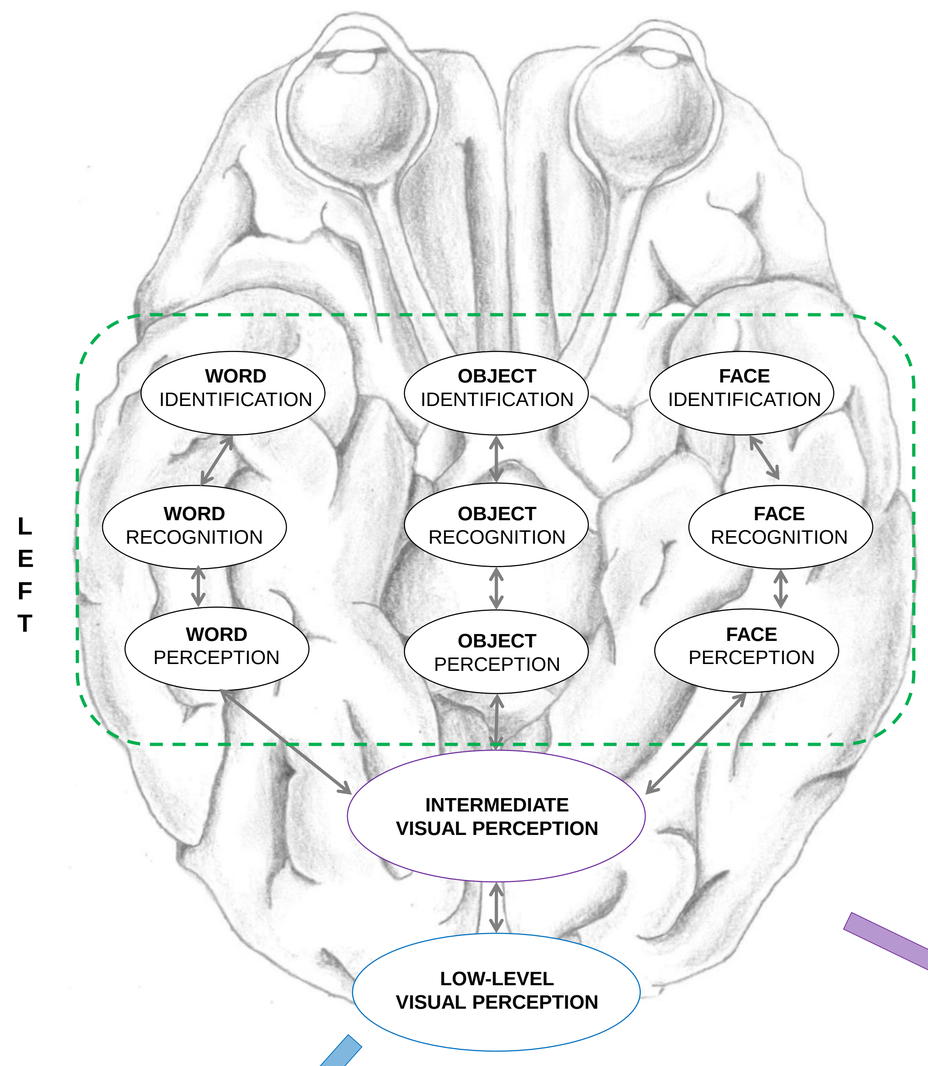
Assessment should also be carried out in the absence of visual perceptual complaints (insight often limited).

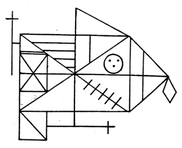
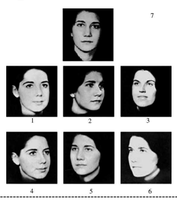
Existing test batteries suffer from limitations:

- *lack of norms*
- *too time-consuming*
- *only selected aspects of visual perception assessed*
- *include tests of functions that are theoretically relevant but that have limited clinical value*

By combining individual sub-tests from different batteries, in-depth assessment is possible, but:

There is a need for a test battery enabling structured assessment of clinically relevant aspects of visual perception.

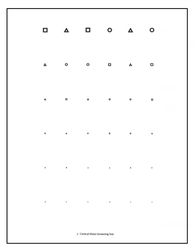


	WORDS	OBJECTS	FACES
IDENTIFICATION	• Palpa 29: Reading words • Palpa 35:Reading regular vs irregular words • EC301-R: Reading digits • Reading text	• Picture naming tasks (WAB 4.A., Boston Naming) 	• Naming familiar faces • Naming famous faces 
RECOGNITION	• Warrington Recognition Memory Test for Words ROAD - COURT	• Object vs non-object: BORB 10 	• Cambridge Face Memory Test[1] • Warrington Recognition Memory Test for Faces 
PERCEPTION	• Word matching tasks ROAD TOAD ROAD	• Benton Visual Form Discrimination Test • Copying: Rey's Complex Figure 	• Matching: Benton Face Recognition Task 

[1]http://www.bbk.ac.uk/psychology/psychologyexperiments/experiments/facememorytest/startup.php

VISUAL ACUITY

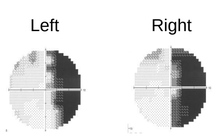
- CORVIST 1
- logMAR charts
- Computer-based Freiburg Visual Acuity & Contrast Test (FrACT)


CORVIST 1

logMAR chart

VISUAL FIELD

- Confrontation: Donders' test
- Computer-based perimetry (E.g.: Humphrey or Goldmann)
- Screening for visual field defects

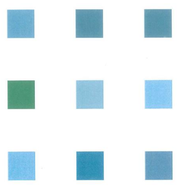


Humphrey i750 (10 degrees)


Laptop screening program

COLOUR PERCEPTION

- Colour discrimination: CORVIST 5
- Farnsworth-Munsell D-15 100 hue test: physical or online version
- Colour matching: Homemade cards
- Pointing (Token test 1, WAB auditory word recall)
- Naming (colours of objects in the room)


CORVIST 5


D-15

MOTION DETECTION

- Motion detection from L-POST


7. Global Motion Detection


9. Biological Motion

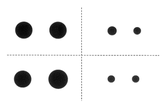
SIMPLE SHAPE PERCEPTION

- Line orientation: Benton Line Orientation Test
- Naming simple shapes
- Form discrimination: CORVIST 2

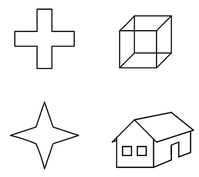

CORVIST 2

SIZE DISCRIMINATION

- CORVIST 3
- BORB 3


BORB 3

COPYING SIMPLE FIGURES



SHAPE INTEGRATION

Distinguish overlapping figures: Poppelreuter
Integrating fragmented stimuli:

- Fragmented digits/letters: VOSP 1, CORVIST 7
- Shape detection: VOSP 0, CORVIST 4


Poppelreuter

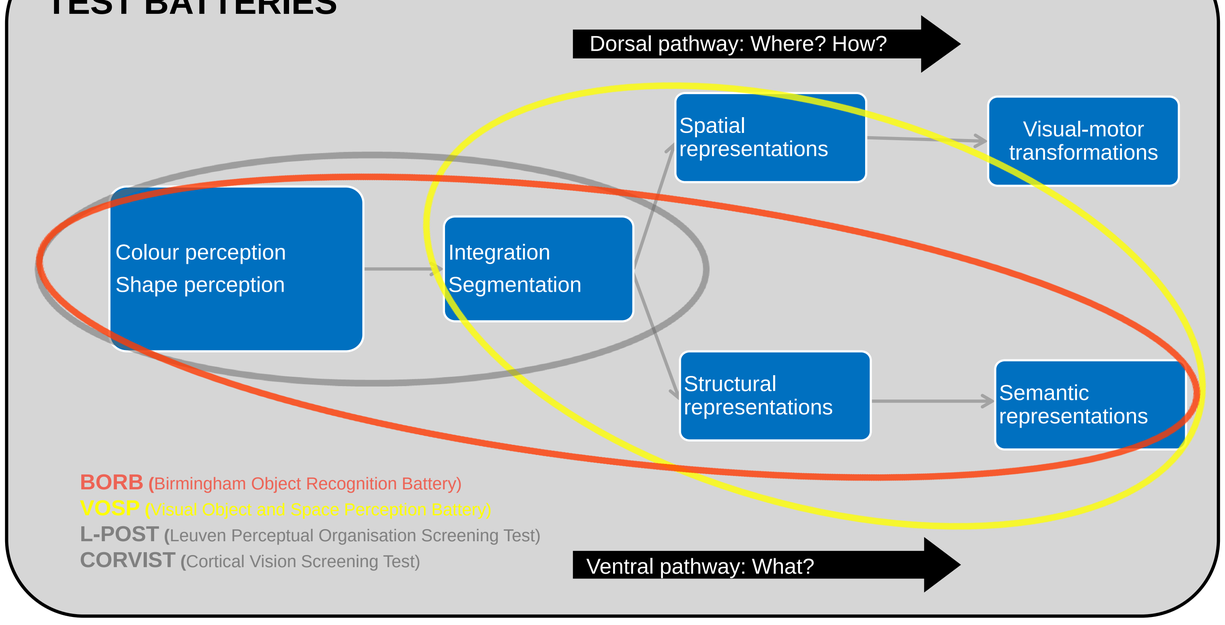

CORVIST 7


CORVIST 4

RELATED FUNCTIONS

- Visual attention /Neglect
- Simultanagnosia
- Visual search
- Optic ataxia
- Oculomotor apraxia
- Topographical orientation

TEST BATTERIES



BORB (Birmingham Object Recognition Battery)
VOSP (Visual Object and Space Perception Battery)
L-POST (Leuven Perceptual Organisation Screening Test)
CORVIST (Cortical Vision Screening Test)

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